UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,497	01/15/2004	David M. Heffelfinger	ANT-002	6167

3897 7590 09/08/2005

SCHNECK & SCHNECK
P.O. BOX 2-E
SAN JOSE, CA 95109-0005

EXAMINER	
AKANBI, ISIAKA O	
ART UNIT	**PAPER NUMBER**
2877	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/758,497	HEFFELFINGER, DAVID M.	
	Examiner	Art Unit	
	Isiaka O. Akanbi	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 5/4/04, 5/10/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement file 15 January 2004 has been entered and reference considered by the examiner.

Drawings

The examiner approves the drawings filed 15 January 2004.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 3-6, 8-14 and 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Krause et al. (5,923,466). The reference of Krause discloses the features of the claimed as follows:

Regarding claim 1, Krause discloses optical measuring system for imaging and activation of sample comprising:

- an illumination source (18) producing an illumination beam (fig. 1);
- a sample holding stage (38) for holding a sample substrate (20) onto which the illumination beam (see fig. 1) directed;
- imaging optics (7) that collects light from the stage (6) and transmits light as a collected light beam (fig. 1);
- a light detector (26/30) positioned to detect said collected light beam;
- an optical activation beam source (18)) producing an activation light beam (col. 5, line 25-30);

- a spatial light modulator (10) for selecting illumination of discrete targets with an activation light beam on a sample (20) on the sample holding stage (38); and
- a controller (14) that directs the optical activation beam to specified targets localized by detection of light from said light detector (30/32).

As to claim 3, Krause further discloses condenser lens (28/24) in the path of the activation light beam.

As to claim 4, Krause discloses wherein optics for selective illumination includes digital micro-mirror device (col. 11, line 55 60).

As to claim 5, Krause discloses wherein said optical active beam is directed off axis with respect to said collected light beam (see fig.4)(col. 7, line 43-51).

As to claim 6, Krause discloses wherein said optical activation beam is directed on axis with respect to said collected light beam, wherein a beam splitter (22) positioned in a path of said collected light beam is used to direct the optical activation beam onto the sample (20)(see fig. 1).

As to claim 8 and 9, Krause discloses illumination filter (14/32) placed in the path of the illumination light and illumination filter holder that allows one of a plurality of illumination filters to be positioned in the path of the illumination light (col. 7, line 35-50).

As to claim 10, Krause discloses an area array detector comprising a CCD Detector and a CID detector (col. 6, line 35-45)

As to claim 11, Krause discloses wherein said imaging filter is one of a plurality of imaging filters mounted on an imaging filter holder, such that said filter may be selectively rotated (i.e. filter wheels) into the pathway of the collected light beam (col. 2, line 35-40).

As to claims 12 and 13, Krause discloses an autofocus system (col. 1, line 25-28) a laser (126/128) directed onto a reflective substrate (20) on the sample holding stage (38), an array detector (30) positioned to detect the reflected light, and Processor (16), wherein said processor determines the focus on the substrate (20) by the location on the array detector (30) to which reflected light is detected.

As to claim 14, Krause discloses a method comprising:

- detecting localized targets on a sample substrate(see fig. 8)(col. 3, line 60- 69);

- a source (126/128) illuminating with a beam of optical activation light directed by a spatial light modulator (150) to the localized targets, said optical activation light releasing a caged compound (Neurotransmitters); and detecting a localized effect of said caged compound (col. 11, line 50-55).

As to claim 15, Krause discloses wherein said optical activation light is UV light (col. 3, line 25-33).

As to claim 16, Krause discloses wherein said spatial light modulator (152) is a digital micro-mirror device (col. 12, line 35-40).

As to claim 17, Krause discloses where said localized targets are cells (col. 1, line 27-31).

As to claim 18, Krause discloses detecting localized targets includes simultaneously detecting an array of localized targets (20) using an optical detector (160) including an area array detector (26).

As to claim 19, Krause discloses detecting localized targets (20) and said detecting a localized effect of said caged compound both are effected by one optical analysis system (col. 11, line 40-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krause et al. (5,923,466) as applied to claim 1 above, and further in view of the reference of Handbook of Fluorescent Probes and Resaerch Chemicals by Richard P. Haugland Sixth Edition.

The reference of Krause teaches of the features of claim 1, however it is silent regarding optical activation beam is a beam of ultraviolet light as claimed in claim 2 and 15. The reference of Richard teaches of ultraviolet light as an optical activation beam (chap. 19.1, page 448).

It would have been obvious to one having ordinary skill in the art at the time of invention to incorporate the teachings of Krause in conjunction with Richard to use ultraviolet light as an optical activation beam for the purpose of accomplishing fluorescence microscope uncaging.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krause et al. (5,923,466) as applied to claim 1 above, and further in view of the reference of Wasserman et al. (US 20050109959). Krause provides everything claimed including a first objective lens and a first imaging lens, however it is silent regarding a second objective lens and a second image lens. The reference of Wassserman teaches of the interchangeability of objective lenses (252) and one of the image lenses (286)(Page 5, Par. 0067, line 12-15).

It would have been obvious to one having ordinary skill in the art at the time of invention to modify the teachings of Krause in conjunction with Wasserman to configure a microscope/optical imaging system for the purpose of magnifying different cells.

Conclusion

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi
August 30, 2005

Gregory J. Toatley, Jr.
Supervisory Patent Examiner